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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,977	09/11/2000	Peter James Hughes	36-1359	1871

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EXAMINER

FOSTER, ROLAND G

ART UNIT	PAPER NUMBER
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2645

DATE MAILED: 03/24/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/623,977

Applicant(s)

HUGHES, PETER JAMES

Examiner

Roland G. Foster

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Arguments***

Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection. Applicant's amendment was effective to overcome the prior rejection using US Patent Application Publication No. 2003/0081115 A1 to Curry et al. because Curry failed to disclose receiving and processing a plurality of individual channels to provide a plurality of outputs each output representing one of the other terminal equipments.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10-14, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,617,539 to Ludwig et al. (hereinafter "Ludwig"), of record.

With respect to claim 1, see the following paragraphs for details on how Ludwig discloses particular limitations within the claim.

The limitation "teleconferencing system" reads on Figs. 1, 3, and col. 8, line 66 – col. 9, line 6.

The limitation "conference bridge having a multichannel connection to each of a plurality of terminal equipments" reads on Ludwig as follows. The conference bridge 35 (Fig. 3) comprises audio mixing circuitry 38 (Fig. 9 and col. 12, lines 63-67), which mixes the participant input channels 114-n into several output signals (e.g., 38a-1, 38a-2, 38b) (col. 13, lines 1-6). Thus, the conference bridge provides a multi-channel output.<sup>1</sup> The multi-channel output is distributed to different user locations (Fig. 4). An A/V switch 30 exists at each of these user locations (Fig. 4). Each A/V switch 30 concentrates the input and output of plural participants at each location (Figs. 3 and 26) and thus can be considered terminal equipment.<sup>2</sup> The A/V switch also provides common audio/video switching for the workstations, conference bridges, and WAN gateways (col. 8, lines 54-60). That is, the A/V switch 30 processes all input and output signals at each user location including signals from the conference bridges and gateways. Therefore, the conference bridge outputs a multichannel connection to a plurality of terminal equipments (A/V switches).

The limitation "a plurality of terminal equipments for receiving individual channels, each of the terminal equipments having means to separately process each channel to provide a

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<sup>1</sup> Interpreting the claim term "multichannel" as an audio output comprising a mix of several channels is consistent with the applicant's specification, which states that the "signal mixing can take place either...in a centralised processing platform as is shown in Figure 2" (page 3, lines 28-31). Thus a mixed signal of the various channels is provided by the conference bridge to the terminal equipment.

<sup>2</sup> Interpreting the claimed term "terminal equipment" as a terminal that concentrates the input and output of plural participants at one location is consistent with the applicant's specification, which discloses that the terminal equipment may be a "concentrator 10" which concentrates the input and output of plural participants 11a, 11b, and 11c at one location A (Fig. 7 and page 8, lines 10-13).

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plurality of outputs, each outputs representing one of the other terminal equipments" reads on Ludwig as follows. The plurality of terminal equipments (A/V switches 30 at user locations A, B, C, and D) receive multi-channel output from the conference bridges 35 (as discussed above). In addition, the A/V switch 30 has a means to separately process each received channel to provide a plurality of outputs. For example, see Fig. 15 and col. 14, lines 32-42 where the A/V switch 30 at site number "three" locally receives and processes channel C in order to output channels A+B+C to participant D and locally receives and processes channel D in order to output A+B+D to participant C. Likewise, the A/V switch 30 at site number "two" individually processes remotely received channel A in order to provide output channel A+C+D and individually processes locally received channel B in order to provide output channels A+B and B+C+D. Therefore, each terminal equipment, which is comprised of the same A/V switch 30, has the means to separately process each channel A, B, C, and D. Each output represents at least "one of the other terminal equipments" (A/V switches) located at sites one thru three (e.g., A+B, A+B+C, A+B+D, A+C+D, B+C+D). The local output for each participant is all conference attendants (all other terminal equipments) "minus one" (the local participant's channel) (col. 13, lines 1-6).

Claims 3 and 12 differ substantively from claims 1 and 10 respectively in that claims 3 and 12 recite additional limitation. The limitation "conference bridge comprises a concentrator, having means to identify the currently active input channels" reads on the audio mixing circuitry 38 in the conference bridge, which also concentrates all the received input channels in into a limited number of mixed, output channels (multichannels) (as discussed above). The claim also

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recites a means to "transmit only those active channels over the multichannel connection together with control information identifying the transmitted channels." The conference bridge relies on the audio video network manager (AVNM) 63 to determine active channels using a "callhandle process" (col. 22, line 56 - col. 23, line 52). Only active channels are transmitted during the conference session. The channels are transmitted via a LANs and WANs (Fig. 1) therefore control information is required to identify the transmitted channels.

Claim 10 differs substantively from claim 1 in that claim 10 recites a method whose steps are equivalent to the functions performed by the system of claim 1.

Claims 16 and 17 differ substantively from claims 1 and 10 respectively in that claims 16 and 17 recite "monaural channels," which reads on col. 7, lines 43-50.

With respect to claims 2 and 11, see col. 17, lines 55-60. Using stereo audio to create a "spatial metaphor" for each user is equivalent to creating a space identity corresponding to each user (i.e., a virtual sound source for each user).

With respect to claims 4-6 and 13, see col. 13, lines 1-13 where the CMS (terminal) comprises the audio-mixer as discussed above.

With respect to claim 7, see Fig. 35, "Mute" for various participants.

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With respect to claims 8 and 14, see col. 15, lines 46-55 and col. 17, lines 9-36 where the collaborative multimedia workstations (CMW) 12 (also terminal equipment) comprise echo cancellation.<sup>3</sup> Echo cancellation requires correlating signals between the output and input in order to reduce echo and feedback signal components that are output and then fed back or reflected (echoed) back into the input.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludwig as applied to claims 1, 8, 10, and 14 above.

Although Ludwig discloses an adaptive echo canceller producing an echo cancellation signal as discussed above (col. 17, lines 9-36), Ludwig fails to disclose using adaptive filters on

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<sup>3</sup> Interpreting "terminal equipment" broadly enough to cover both a concentrator type device such as A/V switch 30 and the end-user workstations (CMWs) is consistent with the applicant's specification, which illustrates the terminal equipment as both a concentrator type device (Fig. 7, concentrator 10) and as an end-user workstation (Fig. 2, customer equipment 10). Further, the CMWs also receive the multichannel signal (Fig. 26) as required in the parent claims. Note that the parent claims do not require that every terminal equipment that receives a multichannel signal must also process each channel individually, which is consistent with a claim structure attempting to broadly cover two disclosed embodiments as discussed above.

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each channel and feeding the output into a combiner in order to produce the echo cancellation signal.

However, "Official Notice" was taken in the last Office action that both the concept and advantages of using adaptive filters on each of a plurality of channels and feeding the output into a combiner would have been well-known and expected in the art of multi-channel, signal processing systems such as echo cancellers used in a conferencing environment. The applicant's lack of traverse to the officially noticed fact in the last Office action is taken as an admission of the facts noticed.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add adaptive filtering on each channel with output fed into a combiner to the adaptive echo canceller disclosed by Ludwig.

The suggestion/motivation for doing so would have been to increase the accuracy and flexibility of adaptive filtering used in an echo canceller by individually adapting each channel because each channel is independent (especially in conferencing environments) and thus has varying levels of feedback and echo.



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*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roland Foster whose telephone number is (703) 305-1491. The examiner can normally be reached on Monday through Friday from 9:00 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan S. Tsang, can be reached on (703) 305-4895. The fax phone number for this group is (703) 872-9309.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to customer service whose telephone number is (703) 306-0377.



Roland G. Foster  
Primary Patent Examiner  
March 22, 2004